Soil
Conservation
Service

Idaho
Basin Outlook Report
January 1, 1993

Basin Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

For more water supply and resource management information, contact:

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How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

IDAHO WATER SUPPLY OUTLOOK REPORT

JANUARY 1, 1993

SUMMARY

After almost six years of drought conditions, Idaho's mountain snowpack is off to a promising start for the 1993 water year. Snowpacks throughout the state are near or above normal for January 1. Soil moisture and ground water conditions are very dry, however, and could have an adverse effect on runoff. Reservoir storage will play a major role in the water supply for 1993. Many reservoirs across southern Idaho are nearly empty, and water users will be almost entirely dependent upon snowpack and the resulting runoff for their water supply next summer. Over half of the winter accumulation season still lies ahead, and the next three months will determine the fate of Idaho's 1993 water supply.

SNOWPACK

Snowfall started around the first of November in Idaho, and frequent storms increased the mountain snowpacks during the early winter months. Powder snow and excellent coverage have delighted skiers throughout the state. Lower elevation snowpack throughout most of the state is well above average. In a reversal of previous years' trends, southern Idaho snowpacks are among the best in the state. Snowpacks currently range from 130 to 155% of average across the southern edge of the state, with the exception of the Bear River area which reports near average conditions. The northern two-thirds of the state reports 85 to 120% of average snowpacks. The upper Snake basin in Wyoming reports 96% of average snowpack. By January 1, approximately 40% of the season's snowpack is on the ground. With over half of the winter season still ahead, there is plenty of time for snowpack conditions to change -- for better or worse!

PRECIPITATION

The water year began with very little mountain rainfall prior to the beginning of snow accumulation. As a result, most soils are very dry under the mountain snowpack and could absorb significant snowmelt, reducing runoff yield. Overall, October was dry in the Panhandle and wet in the south, especially in the central mountains. This trend reversed in November as mountain precipitation in southern Idaho turned to a drier pattern. During December, precipitation was near or above normal throughout most of the state with well above average precipitation in southwest and southcentral Idaho. Water year to date mountain precipitation is around 90% of average in northern Idaho and the upper Snake River basin in Wyoming, near average in the central mountains and Bear River basin, and 120% of average in the south. Temperatures so far this winter have been below normal. The months of November, December, and January combined account for nearly half of the average annual mountain precipitation. A wet January will almost certainly be needed to ensure adequate water supplies in the summer of 1993.

RESERVOIRS

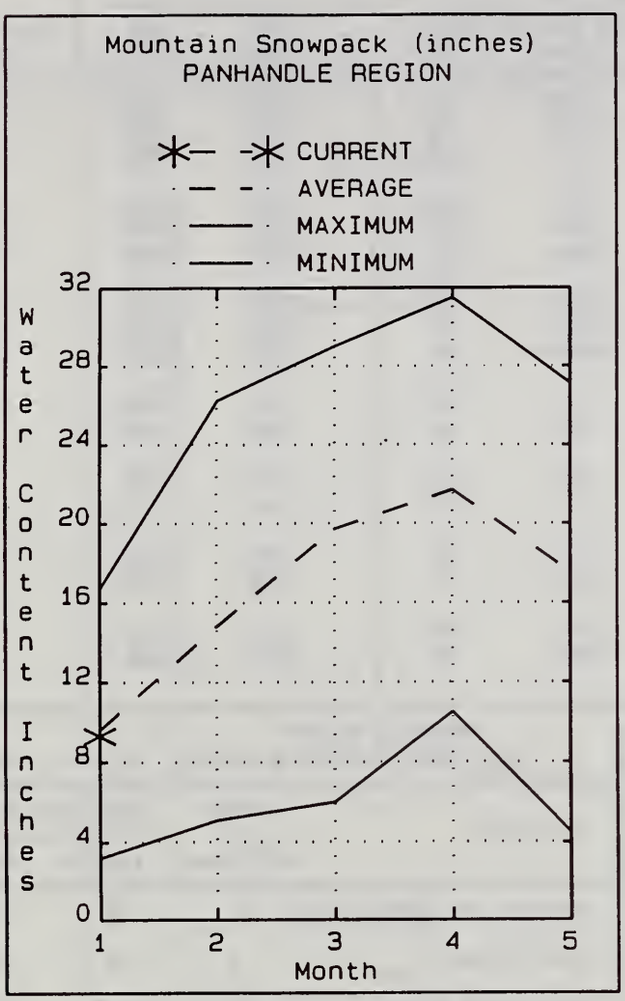
Reservoir carryover storage is one of the few known quantities influencing this summer's water supply... and the news is NOT good. Many reservoirs in southern Idaho are holding record low storage amounts as a result of the sustained drought of the last several years. Northern Idaho reservoirs are in somewhat better shape. Reservoirs of specific concern, holding less than 25 percent of capacity, include the Boise system, Little Wood, Mackay, Oakley, Salmon Falls, Owyhee, Bear Lake, and Montpelier Creek reservoirs. As usual, storage in the upper Snake and Payette system is somewhat better; these systems report 32 and 47% of capacity, respectively. Some of the storage in the Payette system will be used to back fill Brownlee Reservoir, so these figures should drop as water is released.
Note: SCS reports reservoir information in terms of 'usable' contents, which includes both active and inactive storage. Other operators may report reservoir contents in different terms.

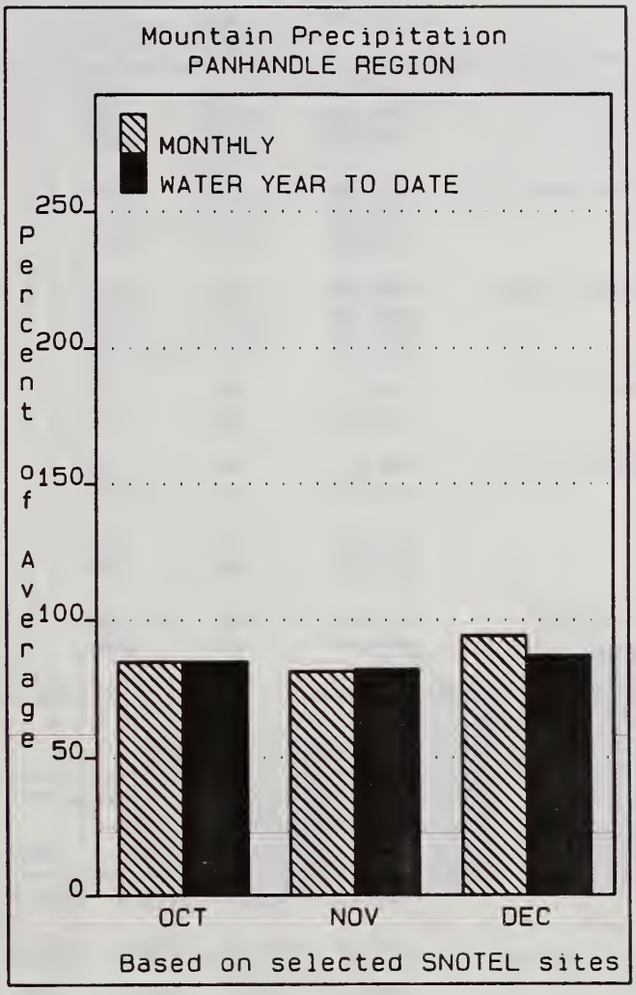
STREAMFLOW

October through December streamflow was below to well below normal throughout Idaho, a continuing sign of low soil moisture conditions due to the extended drought. Fall streamflow was 50 to 70 percent of average across central and southern Idaho and 70 to 80 percent of average in northern Idaho and the upper Snake. As a result, reservoirs are refilling slower than normal and many operators have reduced the outflows to bare minimums needed for protection of fisheries. Streamflow forecasts for the coming spring and summer are in the near average range throughout Idaho with the exception of the Owyhee, Bruneau, Oakley and Salmon Falls basins in southern and southwestern Idaho where abundant snowpack has produced forecasts well above normal for the first time in many years.

Panhandle Region

January 1, 1993





WATER SUPPLY OUTLOOK

The Panhandle region received slightly below normal precipitation during October and November and near normal precipitation during December. Mountain precipitation for the water year stands at 88% of average. Several major storm systems moved through the Panhandle region during December and produced blizzard conditions in the lower elevation areas. Snowpacks are well above normal in the lower elevations, and near average in the higher elevations. Currently, snowpacks range from 138% of average in the lower elevation Palouse basin to 97% of average on the Pend Oreille basin. Streamflow forecasts range from 84% of average for the inflow to Pend Oreille Lake to 108% of average for Coeur d'Alene River.

PANHANDLE REGION
Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KOOTENAI at Leonia (1,2)	APR-JUN	3120	4430	5020	88	5610	6920	5701
	APR-JUL	3970	5600	6340	88	7080	8710	7199
	APR-SEP	4550	6420	7270	88	8120	9990	8275
CLARK FK at Whitehorse Rpds (1,2)	APR-JUN	4660	7560	8870	88	10200	13100	10050
	APR-JUL	5470	8860	10400	89	11900	15300	11730
	APR-SEP	5970	9710	11400	88	13100	16800	12910
PEND OREILLE LAKE inflow (1,2)	APR-JUN	4830	8320	9910	87	11500	15000	11390
	APR-JUL	6020	9720	11400	87	13100	16800	13150
	APR-SEP	6610	10700	12500	87	14300	18400	14370
PRIEST nr Priest River (1,2)	APR-JUL	390	605	700	86	795	1010	814
	APR-SEP	420	645	750	86	855	1080	868
COEUR D'ALENE at Enaville (1)	APR-JUL	395	665	785	102	905	1180	769
	APR-SEP	415	695	825	102	955	1240	809
ST. JOE at Calder	APR-JUL	780	970	1100	94	1230	1420	1169
	APR-SEP	730	1030	1160	94	1290	1580	1237
SPOKANE nr Post Falls (1,2)	APR-JUL	785	2010	2570	98	3130	4360	2627
	APR-SEP	950	2090	2670	98	3250	4410	2720

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	1438.0	2110.0	2586.0
FLATHEAD LAKE	1791.0	1021.0	1022.0	1305.0
NOXON RAPIDS	335.0	311.2	322.3	317.1
PEND OREILLE	1561.3	486.4	541.2	744.9
COEUR D'ALENE	238.5	44.5	140.6	130.5
PRIEST LAKE	119.3	51.8	21.8	54.8

PANHANDLE REGION
Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	24	80	73
Moyie River	2	78	61
Clark Fork River	44	81	94
Priest River	4	111	97
Pend Oreille River	60	88	97
Rathdrum Creek	5	299	129
Hayden Lake	0	0	0
Coeur d'Alene River	5	99	104
St. Joe River	2	97	107
Spokane River	12	129	112
Palouse River	1	200	138

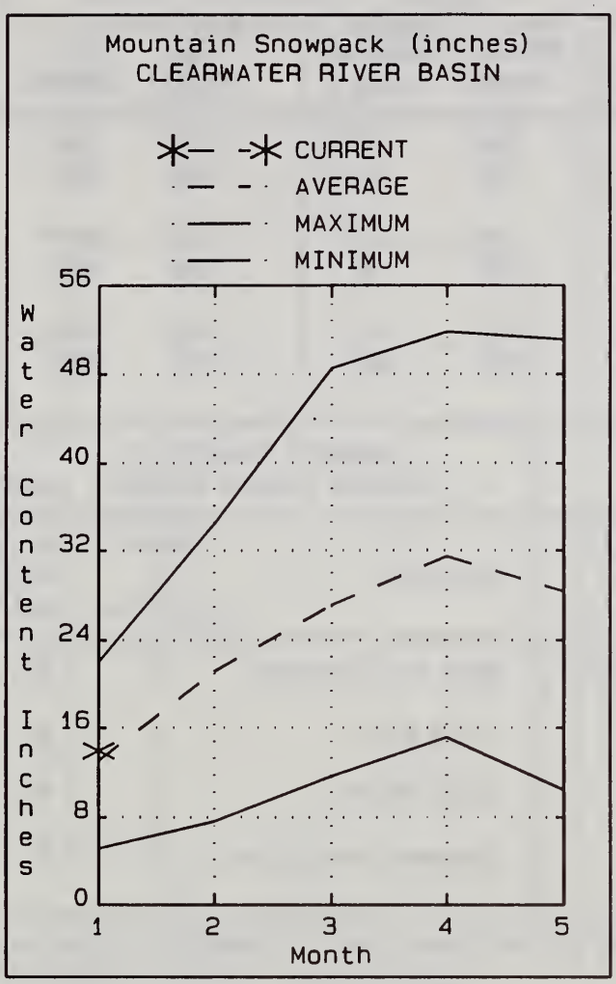
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

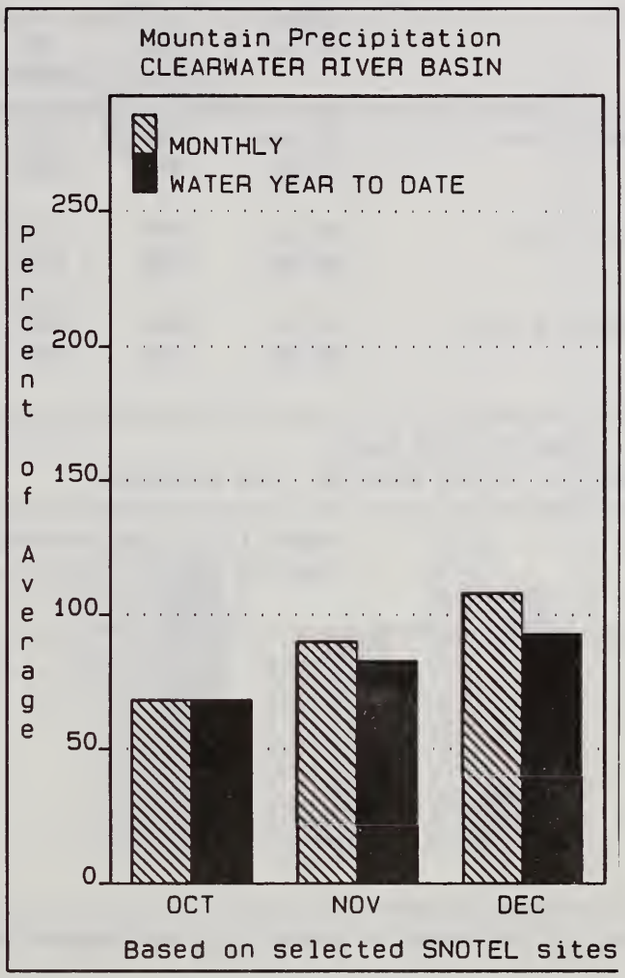
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Clearwater River Basin

January 1, 1993





WATER SUPPLY OUTLOOK

The water year started with below normal mountain precipitation in October and then improved with near average precipitation falling in November and December. Mountain precipitation for the water year is still slightly below average at 93% of average. Overall, the Clearwater basin is reporting a near normal snowpack at 106% of average. The snowpack in the lower elevations is above normal while the snowpack in the higher elevations is near normal. Dworshak Reservoir storage is 75% of capacity which is normal for this time of year. Streamflow forecasts range from 90 to 110% of average for the Clearwater basin. Current conditions indicate that water supplies should be adequate in the Clearwater basin during 1993.

CLEARWATER RIVER BASIN
Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DWORSHAK RESERVOIR inflow (1)	APR-JUL	1720	2580	2970	110	3360	4220	2700
	APR-SEP	1830	2740	3160	110	3580	4490	2875
CLEARWATER at Orofino (1)	APR-JUL	2050	3570	4260	90	4950	6470	4718
	APR-SEP	2170	3770	4500	90	5230	6830	4976
CLEARWATER at Spalding (1,2)	APR-JUL	3900	6470	7640	100	8810	11400	7618
	APR-SEP	4110	6830	8070	100	9310	12000	8052

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3467.8	2627.0	1453.1	2431.0

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	11	94	105
Lochsa River	4	89	98
Selway River	5	94	108
Clearwater Basin Total	19	94	106

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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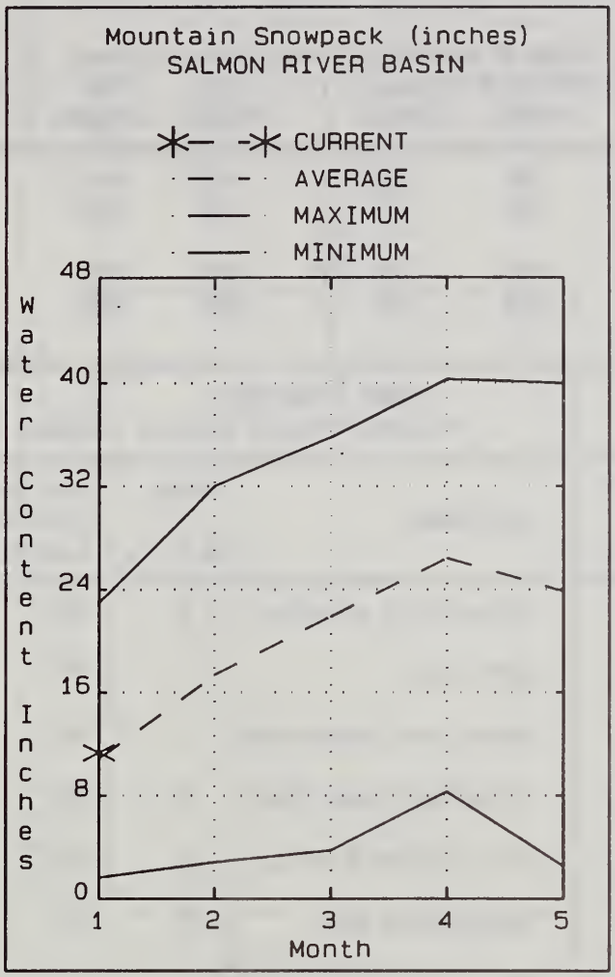
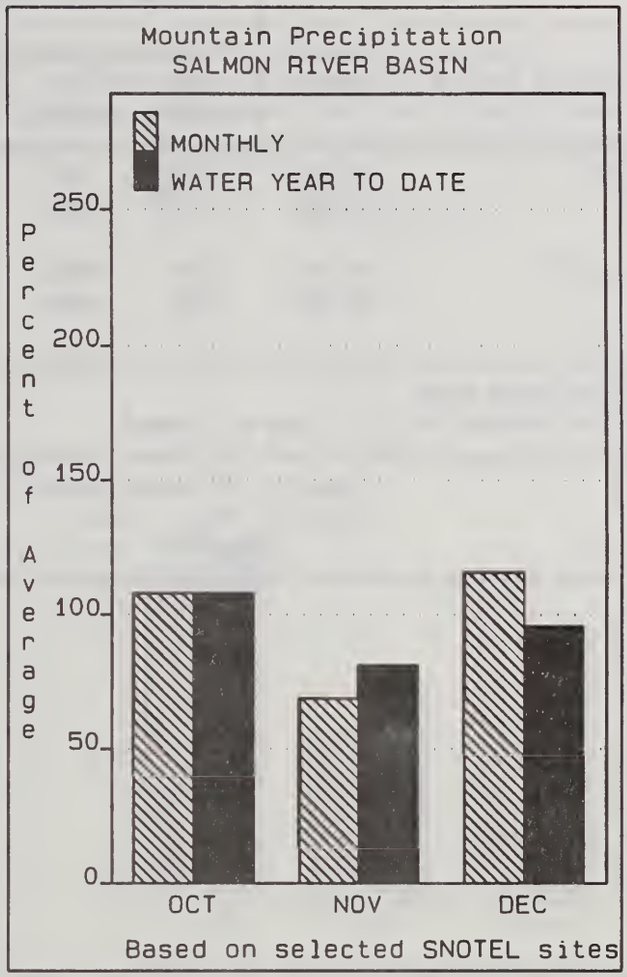
Salmon River Basin

January 1, 1993





WATER SUPPLY OUTLOOK

Above normal mountain precipitation fell in the Salmon basin during October and December. The basin is currently reporting near normal precipitation for the water year, 96% of average. The snowpack is better in the western end of the basin and ranges from 86% of average on the Lemhi River to 117% of average on the Little Salmon River. Streamflow forecasts are for near normal runoff on the Salmon River. Unless conditions change drastically, the water supply should be adequate in the Salmon basin this summer.

SALMON RIVER BASIN

Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SALMON at Salmon (1)	APR-JUL	295	595	735	85	875	1180	869
	APR-SEP	345	705	865	85	1030	1380	1019
SALMON at White Bird (1)	APR-JUL	2760	4380	5110	86	5840	7460	5956
	APR-SEP	3070	4860	5670	86	6480	8270	6602

SALMON RIVER BASIN

Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN

Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	8	102	97
Lemhi River	4	74	86
Middle Fork Salmon River	3	99	98
South Fork Salmon River	3	104	112
Little Salmon River	4	120	117
Salmon Basin Total	23	100	104

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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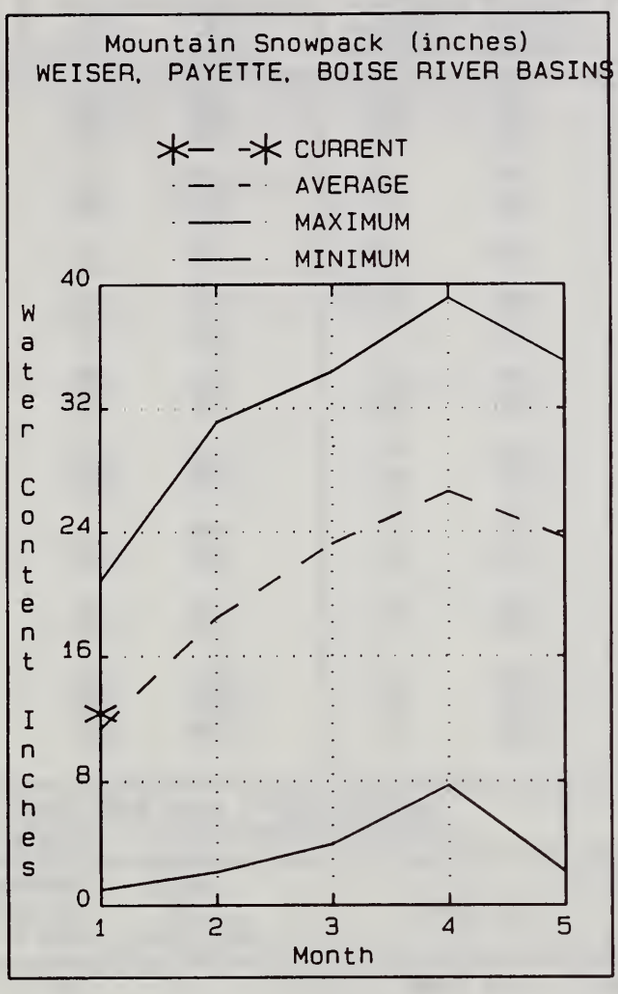
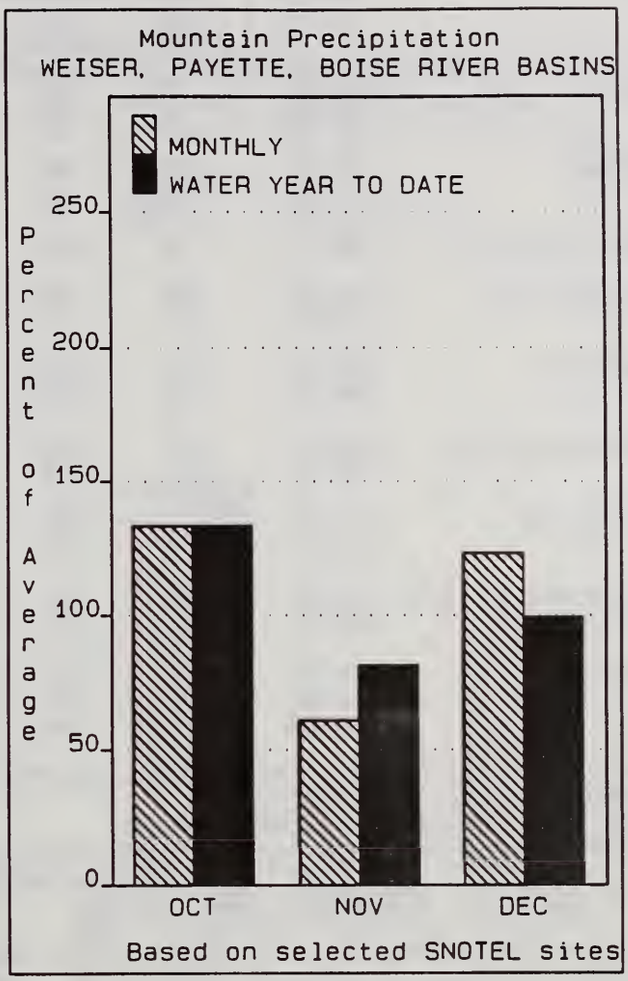
Weiser, Payette, Boise River Basins

January 1, 1993





WATER SUPPLY OUTLOOK

Much needed mountain precipitation fell during October and December with each month receiving over 120% of the monthly average. November brought only 61% of the average monthly precipitation and the water year to date precipitation currently stands at 99% of average for these basins. The snowpack in these drought ridden basins is off to a good start, however, caution must be used since we are less than halfway through the snow accumulation season. Snowpack levels are greatest in the west central mountains and lower elevation areas, and currently range from 124% of average on the Weiser basin to 101% of average on the South Fork Payette River. The Boise River basin only needs an additional 1 to 2 inches of moisture to exceed the peak snowpack of last year. With near record low reservoir carryover storage in the Boise basin, 17% of usable capacity, this year's streamflow runoff will be critical in determining the water supply availability. Streamflow forecasts indicate slightly below normal runoff for the Boise River and near normal for the Payette basin. The remainder of the snow accumulation season will determine the fate of the water supply picture for the Boise basin.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WEISER nr Weiser (1)	APR-JUL	71	240	315	82	390	560	386
	APR-SEP	79	260	340	82	420	600	415
SF PAYETTE at Lowman	APR-JUL	280	360	410	95	460	540	432
	APR-SEP	325	405	460	94	515	595	488
DEADWOOD RESERVOIR inflow (1)	APR-JUL	82	108	133	98	158	185	136
NF PAYETTE at Cascade (1,2)	APR-JUL	305	445	505	101	565	705	498
	APR-SEP	335	475	540	101	605	745	533
NF PAYETTE nr Banks (2)	APR-JUL	445	565	650	100	735	855	648
	APR-SEP	470	600	690	100	780	910	690
PAYETTE nr Horseshoe Bend (1,2)	APR-JUL	940	1390	1600	99	1810	2260	1618
	APR-SEP	1010	1510	1730	99	1950	2440	1755
BOISE nr Twin Springs (1)	APR-JUL	390	530	600	95	670	810	631
	APR-SEP	410	575	650	95	725	890	686
SF BOISE at Anderson Rnch Dm (1,2)	APR-JUL	320	435	500	92	565	680	544
	APR-SEP	320	470	540	93	610	760	582
BOISE nr Boise (1,2)	APR-JUN	730	1040	1180	93	1320	1630	1264
	APR-JUL	755	1150	1320	93	1490	1890	1421
	APR-SEP	875	1260	1430	93	1600	1990	1535

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	0.8	1.3	4.2
CASCADE	703.2	352.7	457.3	419.7
DEADWOOD	161.9	50.0	59.1	73.7
ANDERSON RANCH	464.2	21.6	89.0	319.9
ARROWROCK	286.6	104.3	100.6	193.8
LUCKY PEAK	293.2	50.0	59.9	94.5
LAKE LOWELL (DEER FLAT)	177.1	43.6	63.3	126.0

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	184	136
Weiser River	3	149	124
North Fork Payette	7	120	125
South Fork Payette	4	115	101
Payette Basin Total	12	123	116
Middle & North Fork Boise	7	136	103
South Fork Boise River	7	147	109
Mores Creek	4	189	123
Boise Basin Total	14	155	112
Canyon Creek	1	494	287

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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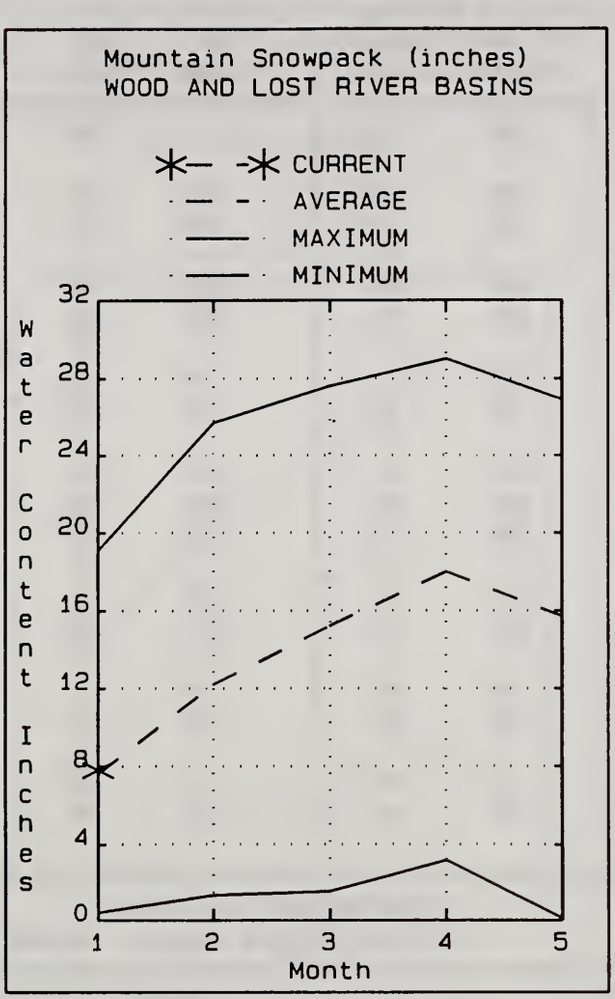
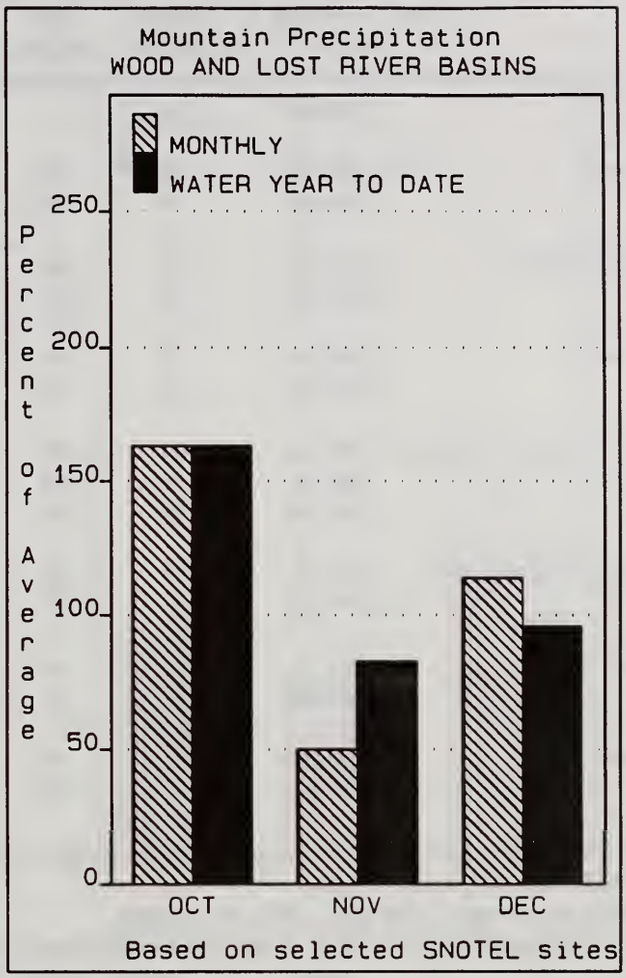
Wood and Lost River Basins

January 1, 1993





WATER SUPPLY OUTLOOK

The new water year brought well above normal monthly precipitation in October, 162% of average, but only half of the average precipitation in November. Above normal mountain precipitation in December brought the water year to date precipitation to 95% of average. Currently, the snowpack is above average in the lower elevation areas and near average in the higher elevations. Snowpacks in these areas range from 90% of average on the Big Wood River basin to 148% of average on Camas Creek. Current streamflow forecasts call for 70% of average for Magic Reservoir inflow and 97% of average for the Big Lost River. Reservoir storage for Little Wood and Mackay reservoirs is less than 25% of usable capacity and Magic Reservoir is only 5% of usable capacity. Water users should stay in contact with their irrigation districts for more specific information.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BIG WOOD AT HAILEY	APR-SEP	46		200	70		355	286
BIG WOOD nr Bellevue	APR-JUL	30	89	128	70	168	225	183
	APR-SEP	38	98	138	70	178	240	197
BIG WOOD bl Magic Dam (2)	APR-JUL	62	147	205	70	265	345	294
	APR-SEP	59	157	215	70	275	425	309
LITTLE WOOD nr Carey	APR-JUL	27	54	73	79	92	119	92
	APR-SEP	36	59	78	79	97	120	99
BIG LOST at Howell Ranch nr Chilly	APR-JUN	64	91	109	77	127	154	141
	APR-JUL	79	115	140	77	165	200	181
	APR-SEP	96	134	160	78	186	225	206
BIG LOST bl Mackay Reservoir (2)	APR-JUL	57	89	111	74	133	165	150
	APR-SEP	69	111	134	74	157	200	182
LITTLE LOST bl Wet Ck	APR-JUL	21	26	30	97	34	39	31
	APR-SEP	27	34	38	97	43	49	39
LITTLE LOST nr Howe	APR-JUL	25	29	32	97	35	39	33
	APR-SEP	32	37	41	95	45	50	43

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	9.9	15.9	89.0
LITTLE WOOD	30.0	10.1	3.2	13.5
MACKAY	44.4	15.5	16.4	26.4

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Magic	8	101	90
Camas Creek	3	254	148
Big Wood Basin Total	11	121	101
Little Wood River	3	115	106
Fish Creek	0	0	0
Big Lost River	5	110	109
Little Lost River	3	111	113

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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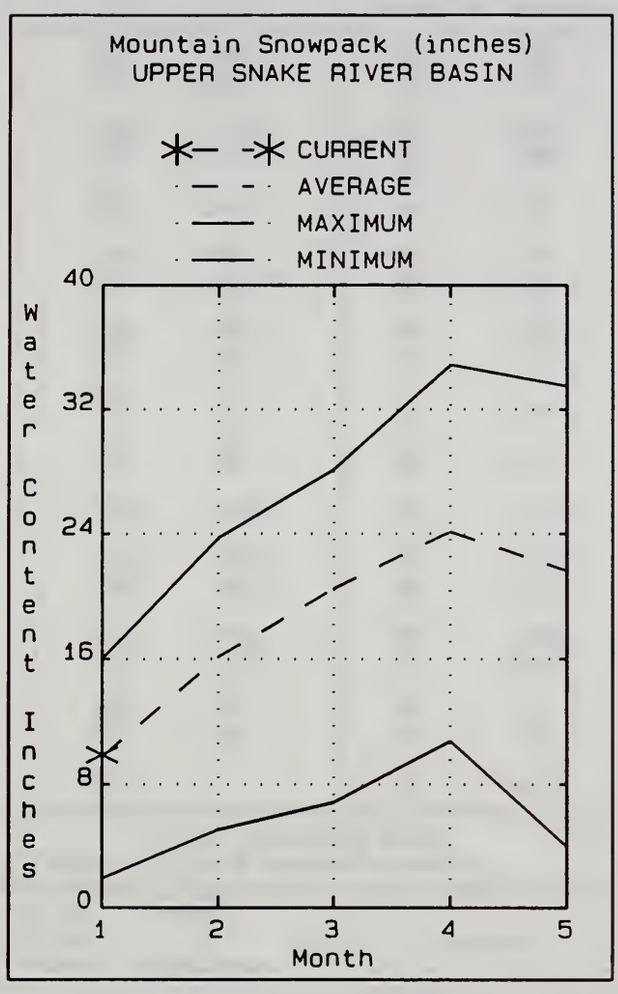
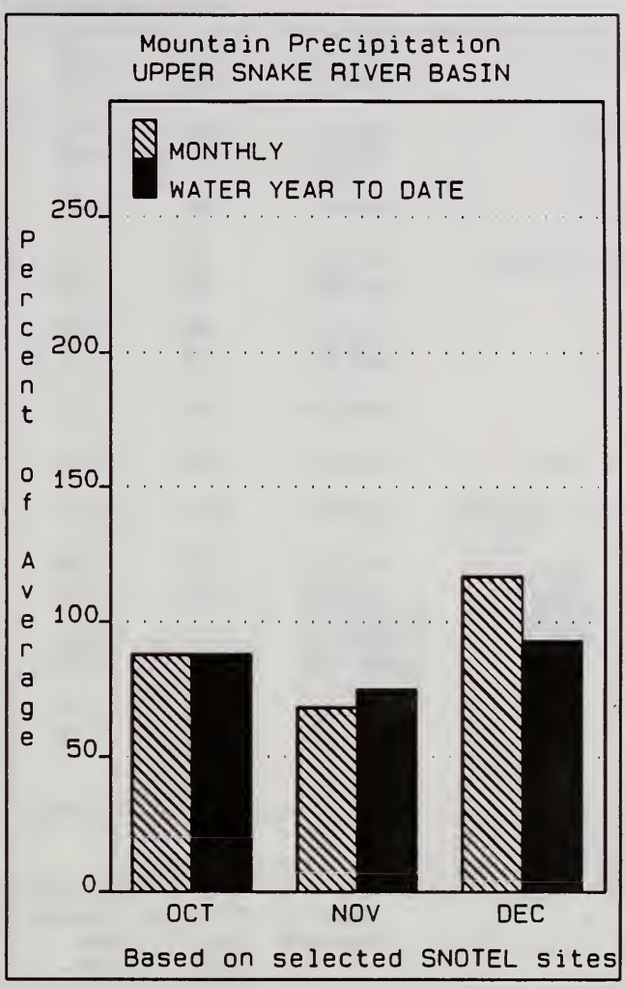
Upper Snake River Basin

January 1, 1993





WATER SUPPLY OUTLOOK

The mountain precipitation in the upper Snake basin was below average in October and November and improved in December with slightly above average precipitation falling. The water year to date precipitation for the Snake River above American Falls is 93% of average. Similar to the rest of the state, the lower elevation snowpack is greater than the higher elevation snowpack when compared to average conditions. The snowpack ranges from 134% of average on the Willow Creek and Portneuf River basins to 85% of average on the Gros Ventre, Greys, and Salt river basins in Wyoming. Current streamflow forecasts are below normal runoff for all forecasts points in the basin. The eight major reservoirs in the basin are reporting only 32% of combined usable capacity with Jackson Lake and Blackfoot reservoirs both storing less than 20% of usable capacity. As a result of low reservoir carryover storage, water users will be very dependent upon this year's snowpack for their water supply.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
HENRYS FORK nr Ashton	APR-JUL	355	415	455	84	495	555	544
	APR-SEP	500	565	610	84	655	720	730
HENRYS FORK nr Rexburg	APR-JUL	780	930	1030	84	1130	1280	1228
	APR-SEP	945	1180	1290	83	1400	1640	1551
FALLS RIVER nr Squirrel	APR-JUL	240	310	335	92	360	435	364
TETON ab S Leigh Ck nr Driggs	APR-JUL	96	123	142	93	161	188	153
	APR-SEP	129	163	186	93	210	245	199
TETON nr St. Anthony	APR-JUL	250	310	350	93	390	450	375
	APR-SEP	315	375	420	93	465	515	454
SNAKE nr Moran (1,2)	APR-SEP	645	725	815	94	905	990	869
SALT ab Palisades nr Etna	APR-SEP	250	320	370	93	420	490	399
PALISADES RESERVOIR inflow (1,2)	APR-SEP	2110	2970	3420	91	3870	4780	3763
SNAKE nr Heise (2)	APR-JUL	2060	2730	3180	92	3630	4300	3451
	APR-SEP	2410	3200	3730	92	4260	5050	4049
SNAKE nr Blackfoot (1,2)	APR-JUL	2440	3490	4080	92	4670	5730	4444
	APR-SEP	2700	4310	5040	92	5770	7380	5482
PORTNEUF at Topaz	MAR-JUL	56	71	81	94	91	106	86
	MAR-SEP	71	89	101	94	113	132	107
AMERICAN FALLS RESV INFLOW	APR-JUL	795		2510	82		4230	3066

UPPER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	55.6	80.2	74.0
ISLAND PARK	135.2	57.3	87.5	88.9
GRASSY LAKE	15.2	12.5	11.7	10.5
JACKSON LAKE	847.0	140.3	647.4	470.2
PALISADES	1355.5	391.0	767.8	1013.1
RIRIE	96.5	26.1	45.5	45.4
BLACKFOOT	348.7	36.7	97.1	230.6
AMERICAN FALLS	1672.6	729.4	825.4	1002.4

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Camas-Beaver Creeks	4	128	122
Henrys Fork River	9	99	117
Teton River	7	118	120
Snake above Jackson Lake	10	106	103
Gros Ventre River	2	93	83
Hoback River	5	95	87
Greys River	3	91	81
Salt River	4	93	91
Snake above Palisades	23	101	96
Willow Creek	7	137	134
Blackfoot River	3	132	104
Portneuf River	2	165	115
Snake abv American Falls	33	110	102

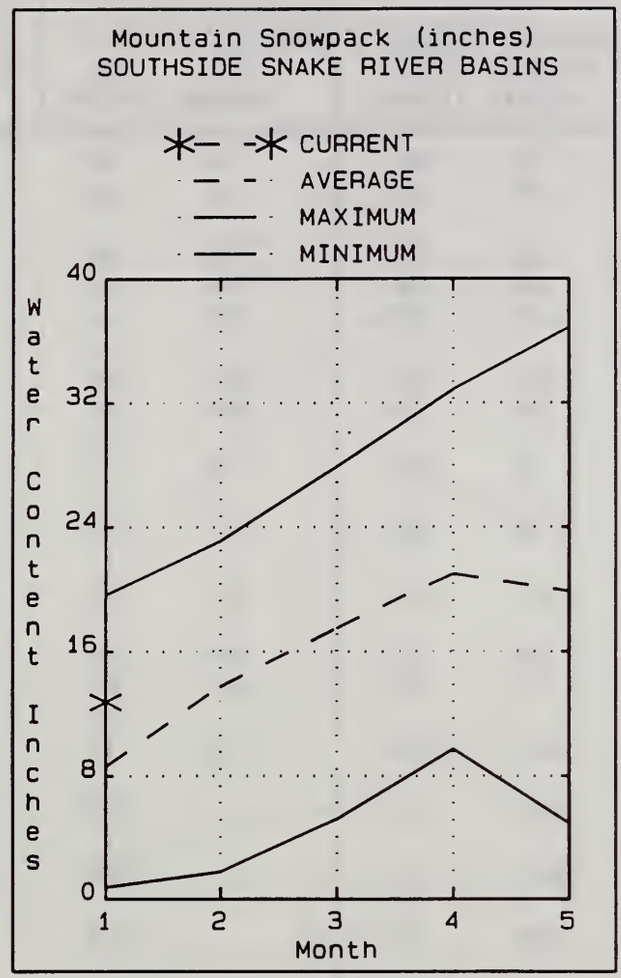
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

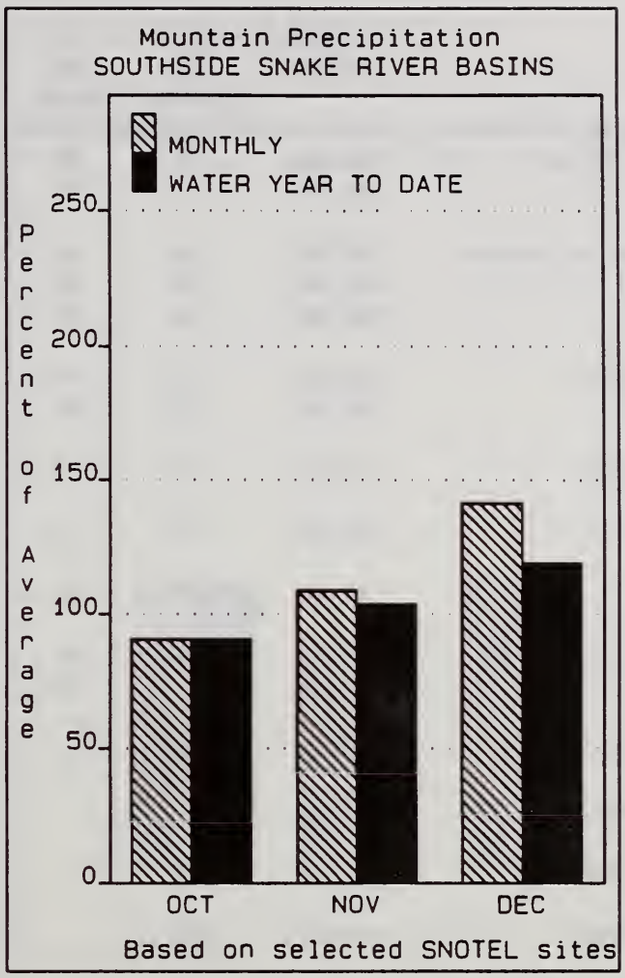
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Southside Snake River Basin

January 1, 1993





WATER SUPPLY OUTLOOK

After one of the driest years on record the Southside Snake River basins started the current water year in the "wet" direction. The monthly mountain precipitation increased each month from 91% of average in October to 141% of average in December. The water year to date precipitation currently stands at 119% of average. The snowpack across the southern part of the state is also off to an excellent start. The Owyhee basin snowpack is 146% of average and has more snow now then it did all of last season. Salmon Falls basin has the highest snowpack percentage in the state at 158% of average. Current streamflow forecasts are for normal to above normal runoff across the southern basins. Above normal streamflow runoff is needed in this part of the state where reservoir storage in Oakley, Salmon Falls, Wildhorse, and Owyhee reservoirs are all less than 10% of usable capacity. Water users in the area should stay in contact with their irrigation districts for more specific information.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
OAKLEY RESERVOIR inflow	MAR-JUL	23	31	36	106	41	49	34
	MAR-SEP	25	33	39	105	45	54	37
SALMON FALLS CK nr San Jacinto	MAR-JUN	58	80	95	110	110	132	86
	MAR-JUL	59	84	100	110	116	141	91
	MAR-SEP	64	88	105	109	122	146	96
BRUNEAU nr Hot Spring	MAR-JUL	181	240	280	119	320	380	235
	MAR-SEP	187	255	295	120	335	405	246
OWYHEE nr Gold Ck (2)	MAR-JUL	24	31	38	109	45	64	35
OWYHEE nr Owyhee (2)	APR-JUL	42	73	94	109	115	146	86
OWYHEE nr Rome	FEB-JUL	305	510	650	105	790	995	622
OWYHEE RESERVOIR inflow (1,2)	FEB-JUL	275	590	735	112	880	1200	656
	APR-SEP	142	325	470	112	615	800	418
SUCCOR CK nr Jordan Valley	FEB-JUL	4.6	11.7	16.5	102	21	28	16.2
SNAKE RIVER AT KING HILL	APR-SEP	174		1550	54		2920	2896
SNAKE RIVER NEAR MURPHY	APR-SEP	270		1660	56		3070	2980
SNAKE RIVER AT WEISER	APR-SEP	220		3330	61		6450	5465
SNAKE RIVER AT HELLS CANYON DAM	APR-SEP	550		3980	65		7420	6129

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	77.4	7.0	7.1	23.7
SALMON FALLS	182.6	11.6	12.4	44.9
WILDHORSE RESERVOIR	71.5	4.3	7.2	30.5
OWYHEE	715.0	38.0	94.4	421.0
BROWNLEE	1419.3	860.2	941.7	825.8

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Raft River	1	135	153
Goose-Trapper Creeks	1	145	129
Salmon Falls Creek	4	145	158
Bruneau River	5	161	154
Owyhee Basin Total	7	231	146

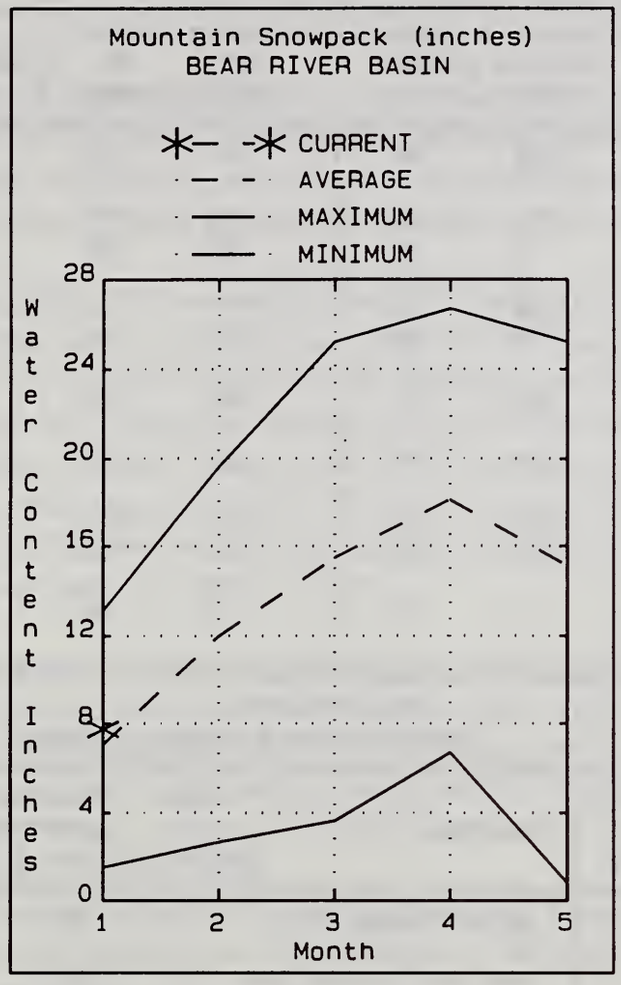
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

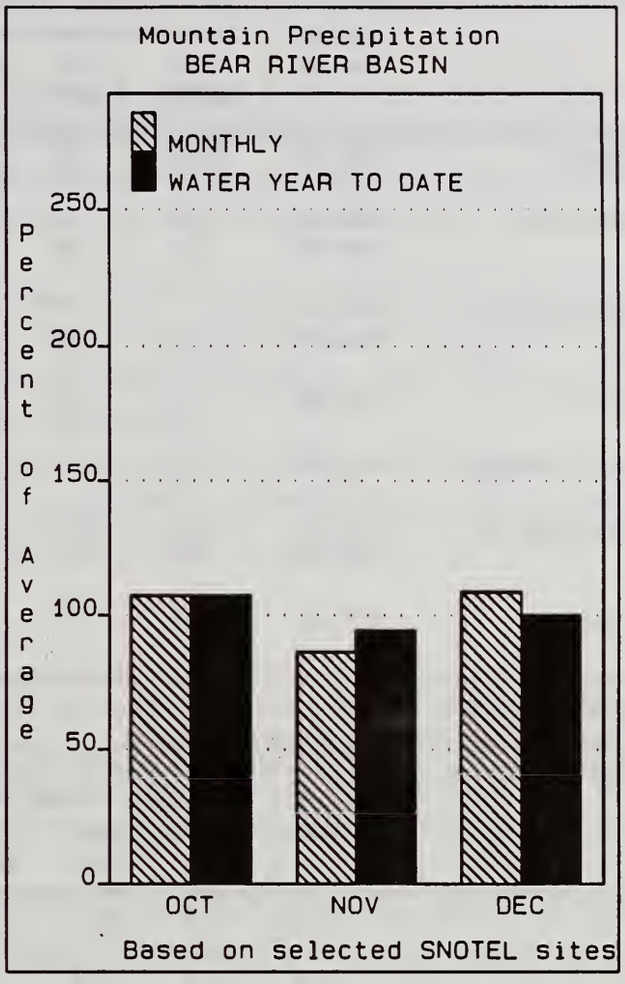
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Bear River Basin

January 1, 1993





WATER SUPPLY OUTLOOK

Mountain precipitation since the beginning of the water year is 100% of average in the Bear River basin. The snowpack currently ranges from slightly above average on Malad basin to slightly below average on Montpelier Creek basin. Overall, the Bear River basin snowpack is 104% of average. Reservoir storage levels in Bear Lake and Montpelier Creek are less than 20% of usable capacity. Streamflow forecasts are for below normal runoff in the Bear River. Water users should stay in contact with their irrigation districts and be prepared for the possibility of below normal water supplies because of the extremely low water levels in Bear Lake.

BEAR RIVER BASIN
Streamflow Forecasts - January 1, 1993

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BEAR RIVER nr Randolph	APR-JUL	14.0	61	106	81	151	215	131
SMITHS FORK nr Border, WY	APR-JUL	55	73	86	84	99	117	102
	APR-SEP	61	82	97	82	112	133	118
THOMAS FORK nr Wy-Id Stateline	APR-JUL			26	79			33
	APR-SEP	12.0	22	28	78	35	44	36
BEAR RIVER near Harer	APR-SEP	128	220	280	81	340	430	345
BEAR RIVER blw Stewart Dam (2)	APR-SEP	107	180	230	77	280	355	298
MONTPELIER CREEK nr Montpelier	APR-JUL	5.4	8.4	10.4	85	12.4	15.4	12.2
	APR-SEP	6.6	9.8	11.9	84	14.0	17.2	14.2
CUB RIVER nr Preston	APR-JUL	23	34	41	87	48	59	47

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of December

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
WOODRUFF NARROWS	57.3	4.3	25.3	---
WOODRUFF CREEK	4.0	1.7	0.7	---
BEAR LAKE	1421.0	207.0	457.0	992.6
MONTPELIER CREEK	4.0	0.8	1.0	1.6

BEAR RIVER BASIN
Watershed Snowpack Analysis - January 1, 1993

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	3	96	100
Bear River ab WY-ID line	7	123	103
Montpelier Creek	1	150	89
Mink Creek	1	165	113
Cub River	1	144	115
Bear River ab ID-UT line	11	124	104
Malad River	1	209	128

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts—an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

Using the Higher Exceedance Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

UPPER HUMBOLDT RIVER BASIN

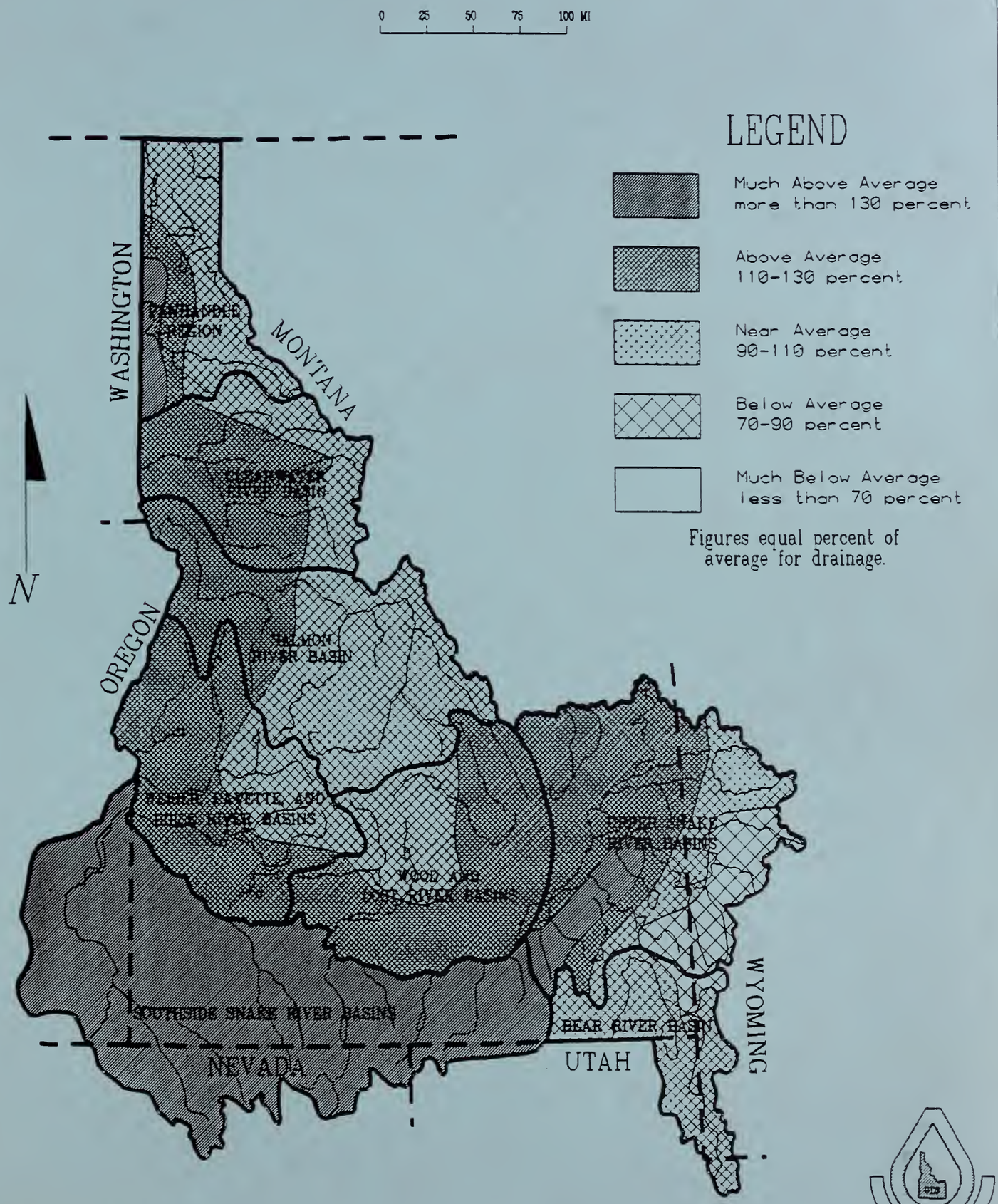
STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<------DRIER-------- FUTURE CONDITIONS -----WETTER------> Chance of Exceeding 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25 YR. (1000AF)
MARY'S RIVER nr Deeth	MAR-JUL	5.0	20.0	36	77	52	76	47
	APR-JUL	8.0	17.0	31	74	45	67	42
LAMOILLE CREEK nr Lamoille	MAR-JUL	6.0	16.0	24	79	32	43	31
	APR-JUL	4.0	15.0	22	75	30	41	30
NF HUMBOLDT RIVER at Devils Gate	MAR-JUL	6.0	12.0	43	73	74	121	59

For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Steamflow Forecasts".

IDAHO MOUNTAIN SNOWPACK

JANUARY 1, 1993



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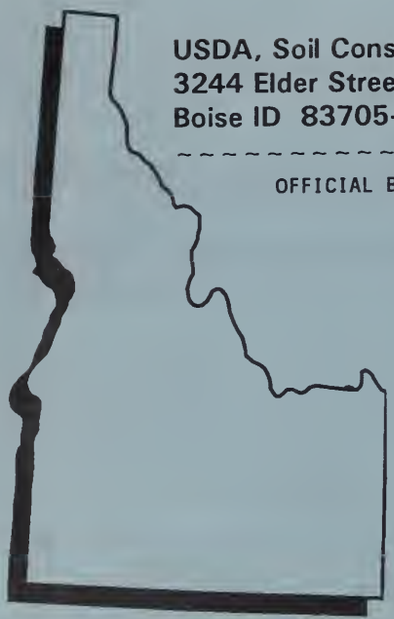

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In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.